



New Hampshire Institute for Local Public Health Practice at the Manchester Health Department

PRINCIPLES OF EPIDEMIOLOGY

Description:

This course will provide a basic understanding of epidemiology in public health practice. Course material will cover both traditional communicable disease epidemiology and non-communicable disease epidemiology, such as chronic diseases. Topics covered will include: interpreting common epidemiological measures, finding and using data sources, the importance of surveillance systems on the national, state and local levels, common methods used to link exposure with disease, investigation of health-related states or events, and disease prevention in public health. This course is suitable for all levels of public health and health agency workers.

***This course is a prerequisite for Applied Communicable Disease Investigation, Control, and Microbiology.**

Course Objectives:

Students who successfully complete this course should be able to correctly:

- Define the practice of epidemiology.
- Interpret epidemiological measures commonly used in public health practice to assess the health status of populations.
- Locate valid sources of public health data.
- Describe the types, uses, and evaluation of public health surveillance.
- Identify epidemiological measures used to identify the cause of disease.
- Define the term 'cluster' in relation to an epidemiologic investigation.
- Describe the steps of an outbreak investigation.
- Appreciate the importance of disease prevention in public health practice.

Target Audience:

This course is suitable for all levels of public health and health agency workers.

***This course is strongly recommended for those who have no formal education in public health and for those who wish to take subsequent courses in the public health practice series. This course is a prerequisite for the Applied Communicable Disease Investigation, Control, and Microbiology course.**

Instructors:

Richard DiPentima, RN, MPH, Former Deputy Director, Manchester Health Department
Anna Thomas, MPH, Community Epidemiologist, Manchester Health Department

Reference Book:

(Provided) Webb, Penny; Bain, Chris; Pirozzo, Sandi; *Essential Epidemiology: An Introduction for Students and Health Professionals*, 2005

Participant Assessment:

All course participants will be given a pre-test to evaluate their level of knowledge of the course content. To successfully complete this course, all participants will be required to pass a comprehensive written examination on content covered within the course, and are allowed one missed course session. Course content will be covered through a variety of media. Listed below are the types of assignments and activities that all participants will responsible to complete.

- Pre-test based on course objectives
- Reading Assignments
- Computer-based demonstration sessions (Instructor-led)
- Take-home post-test based on lesson objectives (passing grade 70% or higher)
- Course evaluation based on competencies and course objectives

Course Overview:**LESSON I – What is Epidemiology?**

- Definition
- Evolution of Epidemiology
- Epidemiology Today: Subdisciplines
- Key Epidemiologic Principles
- What does epidemiology offer?
- The Epidemiologic Approach
- Descriptive Epidemiology
- Analytic Epidemiology
- Disease Causation Models

LESSON II – Measuring Disease Frequency

- What are we measuring?
- Morbidity Disease
- Measuring Disease in Epidemiological Studies
- Measuring Disease Occurrence Using Routine Data
- Other Measures Commonly Used in Public Health Practice
- Measures of Mortality Related to Childbirth and Early Life
- Measuring Health

LESSON III – Sources of Data and Public Health Surveillance

- Raw Health Data
- Summary Health Data
- Available Sources of Data
- Scope of Surveillance
- Types of Surveillance
- Surveillance in Practice
- Evaluation of Surveillance

LESSON IV – Linking Exposure and Disease

- Looking for Associations
- Ratio Measures
- Difference Measures
- Relative Risk vs. Attributable Risk
- Case-Control Studies

LESSON V – Outbreaks, Epidemics, and Clusters

- What is a Cluster?
- Rare Disease Clusters
- Epidemiology of Infectious Diseases
- Disease Transmission
- Epidemics or Outbreaks?
- Investigating Outbreaks

LESSON VI – Disease Prevention in Public Health

- Principles of Disease Prevention
- Scope of Preventive Medicine
- Strategies for Prevention